

REMARKS

Reconsideration of this application and the rejection of claims 1-4, 6-8, 10, 12-15 and 20-22 are respectfully requested. Applicants have attempted to address every objection and ground for rejection in the Office Action dated August 4, 2006 (Paper No. 20060622) and believe the application is now in condition for allowance. The claims have been amended to more clearly describe the present invention.

The Examiner is thanked for the courtesies extended to Applicants' undersigned attorney, during the August 23, 2006 telephone interview, during which the Examiner's assertion of Kline was discussed in greater detail.

Claims 1, 3, 4, 7, 8, 10, 12, 15 and 20-22 stand rejected under 35 U.S.C. §102(b) as being anticipated by newly cited Kline (US 6,315,210). Also, claims 2, 6, 13 and 14 stand rejected under 35 USC §103(a) as being obvious in view of Kline. In Kline, elements 110, 112 are the circular inlets for the hot and cold water pipes for connecting the valve to the respective hot and cold supply lines. Elements 110, 112 are not chambers and are not described or referred to in the description as such. All valves have inlets for connecting the water supply pipes and the drawings in the present application disclose inlets equivalents to parts 110, 112. These inlets are separate from the claimed multi-stage inlet plenum chambers. Elements 110, 112 in Kline clearly correspond to the inlets in claim 1 and the only inlet chambers shown and described as such in the reference are parts 230, 232 for hot and cold water, respectively.

Further, in Kline, inlets 110 and 112 are not annular chambers, but each is instead a circular passageway connecting the respective hot or cold incoming water supply to a single radial port that opens into the actual annular inlet chambers 230, 232. Thus, each inlet 110, 112 and its associated port is in effect an elbow joint integral with the body of the valve to connect the supply pipe to the actual inlet chamber. Inlets 110, 112 fail to distribute or otherwise alter the flow before it reaches the actual inlet chamber. Thus, Kline discloses one inlet chamber for each of the incoming flows and the inlet chambers lead directly to the porting of the valve mechanism.

In contrast, as amended, claim 1 has been amended to recite, among other things, that each inlet communicates with a respective multi-stage annular plenum chamber constructed and arranged upstream of said valve means to distribute flow of water to porting of the valve means for admitting the water to the mixing chamber, wherein each said multi-stage plenum chamber has an annular outer chamber communicating with the associated inlet and an annular inner chamber communication with said porting, wherein said annular chambers are configured to distribute flow of water to porting of the valve means for admitting the water to the mixing chamber, and wherein water enters and exits each annular chamber at positions axially spaced from each other. As should be obvious from the drawings of the application and the cited reference, by “annular,” Applicant means that the chambers ring the interior of the valve body.

Similarly, claim 21 has been amended to recite, among other things, each said inlet communicating with a respective multi-stage annular inlet chamber, valve means for controlling the relative proportions of hot and cold water admitted from each said multi-stage annular inlet chamber to a mixing chamber, each said multi-stage annular inlet chamber being arranged upstream of porting of said valve means to distribute the flow from the associated inlet uniformly with respect to said porting for admitting the flow to said mixing chamber Claim 22 has been amended to recite, among other things, similar language to amended claim 21. There is absolutely no disclosure or suggestion in Kline for providing multi-stage annular inlet chambers for distributing the incoming flows and reducing asymmetric flow patterns affecting the temperature of the mixed water sensed by the thermostat for adjusting the valve.

In particular, asymmetric flow patterns produce mixed water streams within the total mixed water stream having different temperatures, leading to inaccuracies in the response of the thermostat. The present mixing valve reduces or eliminates this problem by uniformly distributing the hot and cold flows before they reach the valve mechanism to produce better mixing of the flows, so that the mixed water stream flowing past the thermostat has a more uniform temperature, resulting in a more accurate response of the thermostat to changes in the mixed water temperature.

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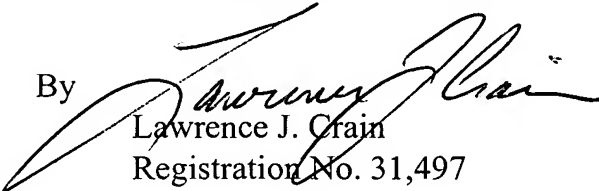
Not only does Kline lack the disclosure of the presently-recited structure, he fails to recognize the problems of asymmetric flow patterns and their effect on the temperature of water sensed by the thermostat.

In view of the above amendments and remarks, the application is respectfully submitted to be in allowable form. Allowance of the rejected claims is respectfully requested. Should the Examiner discover there are remaining issues which may be resolved by a telephone interview, he is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

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